

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2005/0181941, when discussing the application description, rather than to page and line of the specification as filed.

Claims 38 and 39 have been amended by incorporating the subject matter of Claims 41 and 49, respectively, therein, and inserting that the method is carried out while the alkali metal hydroxide is maintained in the solid state; and that the alkali metal hydroxide and carbonaceous material are in powder form, as supported at paragraphs [0034] and [0039] combined. Claims 41 and 49 have been canceled. Claims 40 and 48 have been amended to be consistent with the above-discussed amendment to Claims 38 and 39, respectively.

No new matter is believed to have been added by the above amendment. Claims 1-40, 42-48 and 50-52 are now pending in the application.

REMARKS

The rejections of Claims 1-37 under 35 U.S.C. § 102(b) as anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, or as unpatentable over, WO 01/13390, as evidenced by its US patent equivalent US 7,214,646 (Fujino et al), are respectfully traversed.

As Applicants have previously argued, in none of the processes disclosed by Fujino et al for producing activated carbon is there disclosure or suggestion that both the carbonaceous material and the alkali metal hydroxide be maintained in the solid state during mixing, granulating, and dehydrating steps, as recited in present Claim 1 and claims dependent thereon.

In response to the above argument, the Examiner finds, in effect, that Applicants have not shown that Fujino et al also does not maintain the solid state or that Applicants have defined what they mean by “solid state.” The Examiner further relies on the disclosure in Fujino et al with regard to Example-1 (column 5, line 55ff).

In reply, as described in said Example-1, following mixing of the carbonized powder and the KOH, the resulting mixture was subjected to a potassium activating treatment as an alkali activating treatment at 800°C for five hours in a nitrogen atmosphere. Indeed, Fujino et al proceed directly to activation following mixing of the carbonized powder and the KOH. Fujino et al neither discloses nor suggests either a granulating step or a dehydrating step, as required by present Claim 1. Comparative Example 11 and Comparative Example 12 herein, as described in the specification at paragraph [0203] through [0207], demonstrate that performing an activation treatment immediately after mixing the carbonaceous material and the alkali metal hydroxide results in the entire product being melted and adhered to the interior surface of the reactor in which the activation was carried out.

In view of the significant differences between the presently-recited method of Claim 1, and the processes disclosed by Fujino et al, there is also no basis for finding that the dehydration product claimed in Claim 28, or the activated carbon claimed in Claim 30, is anticipated or otherwise suggested by Fujino et al.

For all the above reasons, it is respectfully requested that the rejections over Fujino et al be withdrawn.

The rejection of Claims 38, 41-42, 46 and 47 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, WO 00/78138, as evidenced by US patent equivalent US 6,902,589 (Guderian et al), is respectfully traversed.

The significant features of Claim 38 reside in conducting heat treating and pressure molding in order to increase the binding capacity of an alkali metal-containing activator in a molded product, as described in the specification beginning at paragraph [0097]. By virtue of this significant feature, the alkali metal activator softens and the entire powder mixture of the carbonaceous material and the alkali metal hydroxide becomes viscous in an intermediate state of the heat treating, and the viscous material is thereafter converted to a solid by means of evaporation of the moisture content, thereby preventing or reducing reactor corrosion, and reducing an amount of impurities.

Guderian et al discloses a method for producing shaped, activated charcoal, wherein carbon-bearing material(s) are homogeneously mixed after being milled or ground with an aqueous binding agent(s), of which at least one contains water; shaping the mixture of carbon bearing materials and binding agents into molded articles; drying to an overall water content of at most 3 wt% relative to the molded article weight; subjecting the shaped and dried molded articles to carbonization; followed by gas activation (column 3, line 23ff). Guderian et al discloses further that one or several aggregates can be added to the carbon-bearing material to improve the processibility of the mixture consisting of the carbon-bearing material

and binding agent while shaping and/or have a catalytic effect during gas activation (column 3, lines 62-66), which aggregates include, *inter alia*, KOH solution (column 4, lines 1-2).

Guderian et al neither anticipates nor otherwise renders obvious the rejected claims. Above-amended Claim 38 requires that the alkali metal hydroxide be in powder form when preparing the mixture comprising the carbonaceous material, which is also in powder form, with the alkali metal hydroxide. Moreover, the KOH solution of Guderian et al, although incidentally listing KOH, is disclosed as an alternative to, for example, surfactants, stearates and/or carboxymethyl cellulose. Thus, the KOH is not added for purposes of alkali activation in Guderian et al, and Guderian et al neither discloses nor suggests alkali activation. Rather, Guderian et al disclose only water vapor and carbon dioxide activation (column 5, lines 58-65).

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 38, 40-42, 44, 46 and 47 under 35 U.S.C. § 103(a) as unpatentable over Guderian et al in view of Otowa, et al, *Development of KOH Activated High Surface Area Carbon and its Application to Drinking Water Purification*, Carbon 1997; 35(9): 1315-1317 (Otowa et al), is respectfully traversed.

The disclosures and deficiencies of Guderian et al have been discussed above. Otowa et al does not remedy these deficiencies. Otowa et al is drawn to preparation of an activated carbon by varying the ratio of KOH to coke. But even if Otowa et al were combined with Guderian et al, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 39, 43, 45, and 49-52 under 35 U.S.C. § 103(a) as unpatentable over Guderian et al in view of US 3,539,467 (Bozarth et al), is respectfully traversed.

As previously discussed, with the hot pressing as recited in Claim 39, high safety can be realized, reactor corrosion can be prevented or reduced, and an amount of impurities can be reduced.

The disclosures and deficiencies of Guderian et al have been discussed above. Bozarth et al does not remedy these deficiencies. The Examiner relies on Bozarth et al for a disclosure of hot pressing of activated carbon. However, Bozarth et al is not directed to an alkali activation, among other differences between the presently-claimed invention and Bozarth et al. Thus, even if one of ordinary skill in the art were to combine Guderian et al with Bozarth et al, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claim 48 under 35 U.S.C. § 103(a) as unpatentable over Guderian et al and Bozarth et al, and further in view of Otowa et al, is respectfully traversed. The disclosures and deficiencies in the combination of Guderian et al and Bozarth et al have been discussed above. The disclosure and deficiencies of Otowa et al have also been discussed above. Thus, even if Otowa et al were combined with Guderian et al and Bozarth et al, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

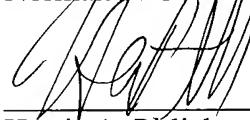
Application No. 10/509,087  
Reply to Office Action of August 6, 2008

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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